



**THE DATASHEET OF
301CNQ045**



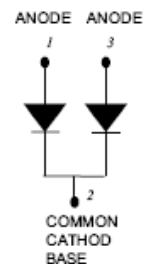
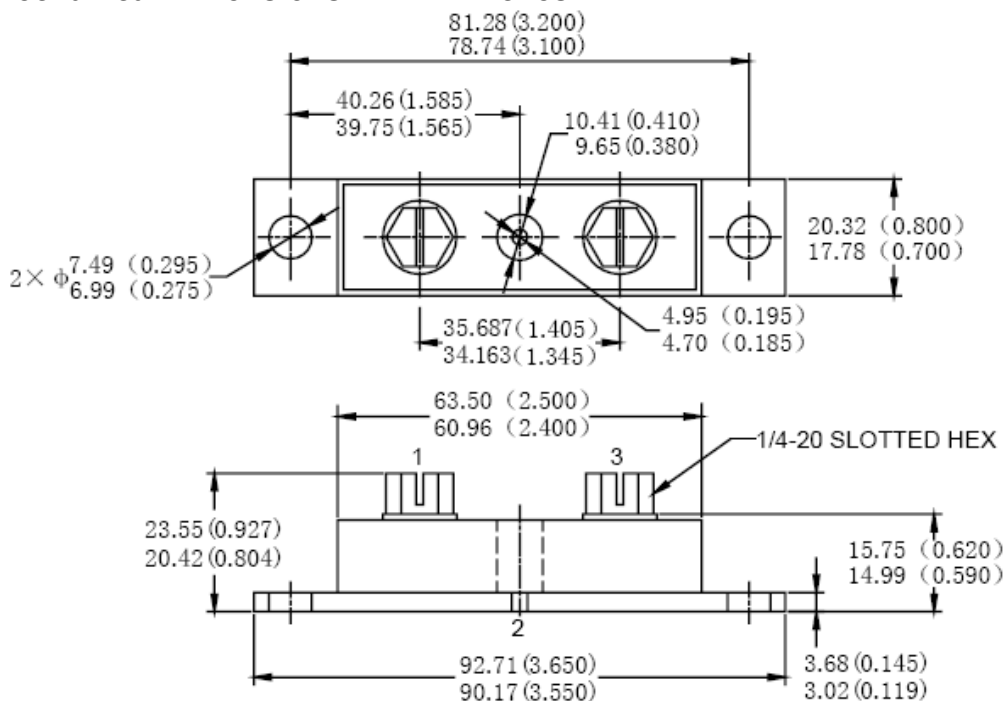
301CNQ035/301CNQ040/301CNQ045/301CNQ050 SCHOTTKY RECTIFIER

Applications:

- High current switching power supply • Plating power supply • Free-Wheeling diodes
- Reverse battery protection • Converters • UPS System • Welding

Features:

- 175 °C T_J operation
- Center tap module
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

Mechanical Dimensions: In mm/ Inches

PRM4 (Non-Isolated)
MARKING, MOLDING RESIN

Marking for 301CNQ035/040/045/050, 1st row SS YYWWL, 2nd row 301CNQ035/040/045/050

Where YY is the manufacture year

WW is the manufacture week code

L is the wafer's Lot Number

Molding resin

Epoxy resin UL:94V-0

- China - Germany - Korea - Singapore - United States •
- <http://www.smc-diodes.com> - sales@smc-diodes.com •



301CNQ... SERIES

Technical Data

Green Products

Data Sheet N1212, Rev. B

Maximum Ratings:

Characteristics	Symbol	Condition	Max.		Units
Peak Repetitive Reverse Voltage	V_{RRM}	-	35	301CNQ035	V
Working Peak Reverse Voltage	V_{RWM}		40	301CNQ040	
DC Blocking Voltage	V_R		45	301CNQ045	
			50	301CNQ050	
Average Forward Current	$I_{F(AV)}$	50% duty cycle @ $T_C=81^\circ\text{C}$, rectangular wave form	150	per leg	A
			300	per device	
Peak One Cycle Non-Repetitive Surge Current (per leg)	I_{FSM}	8.3 ms, half Sine pulse	3840		A
Non-Repetitive Avalanche Energy(per leg)	E_{AS}	$T_J=25^\circ\text{C}$, $I_{AS}=40\text{A}$, $L=0.34\text{mH}$	202		mJ
Repetitive Avalanche Current(per leg)	I_{AR}	Current decaying linearly to zero in 1 μsec Frequency limited by T_J max. $V_A=1.5 \times V_R$ typical	30		A

Electrical Characteristics:

Characteristics	Symbol	Condition	Max.	Units
Forward Voltage Drop (per leg) *	V_{F1}	@ 150A, Pulse, $T_J = 25^\circ\text{C}$	0.69	V
		@ 300A, Pulse, $T_J = 25^\circ\text{C}$	0.90	
Reverse Current (per leg) *	I_{R1}	@ $V_R = \text{rated } V_R$ $T_J = 25^\circ\text{C}$	10	mA
		@ $V_R = \text{rated } V_R$ $T_J = 125^\circ\text{C}$	135	
Junction Capacitance (per leg)	C_T	@ $V_R = 5\text{V}$, $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	7800	pF
Typical Series Inductance (per leg)	L_S	Measured lead to lead 5 mm from package body	7.0	nH
Voltage Rate of Change	dv/dt	-	10,000	V/ μs
Insulation Voltage	V_{RMS}	-	1000	V

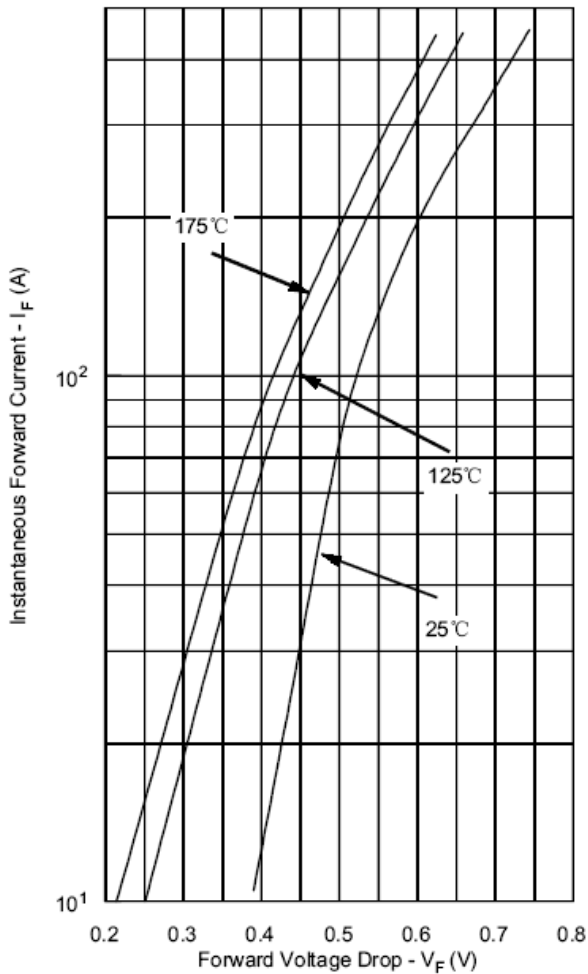
* Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications:

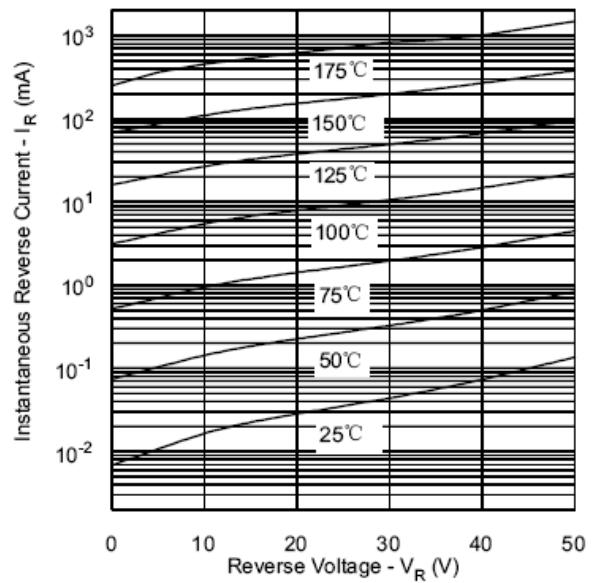
Characteristics	Symbol	Condition	Specification		Units
Junction Temperature	T_J	-	-55 to +175		$^\circ\text{C}$
Storage Temperature	T_{stg}	-	-55 to +175		$^\circ\text{C}$
Typical Thermal Resistance Junction to Case(per leg)	$R_{\theta JC}$	DC operation	0.40		$^\circ\text{C/W}$
Typical Thermal Resistance Junction to Case(per package)	$R_{\theta JC}$	DC operation	0.20		$^\circ\text{C/W}$
Typical Thermal Resistance, case to Heat Sink	$R_{\theta cs}$	Mounting surface, smooth and greased	0.10		$^\circ\text{C/W}$
Mounting Torque	T_M	-	Mounting Torque Base	24(min) 35(max)	Kg-cm
			Terminal Torque	35(min) 46(max)	
Approximate Weight	wt	-	79		g
Case Style	PRM4 Non-Isolated				

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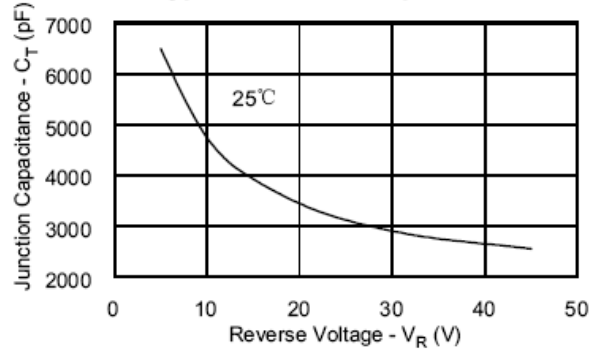
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance







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